

## CLAIMS

1. A driving unit comprising:

a fixed part;

5 a moving part provided movably to said fixed part;

a permanent magnet mounted on either one of said fixed part and said moving part; and

a coil mounted on said the other one of said fixed part and said moving part and facing said permanent magnet,

10 characterized in that neither another permanent magnet nor a high magnetic permeable material is arranged on the other side of said coil facing said permanent magnet.

2. The driving unit as claimed in claim 1, further characterized in that:

15 said coil is wound in the direction parallel to a surface of said permanent magnet.

3. The driving unit as claimed in claim 1, further characterized in that:

20 said coil is wound in the direction perpendicular to a surface of said permanent magnet.

4. The driving unit as claimed in claim 3, further characterized in that:

25 a high magnetic permeable material is arranged in a hollow core of said coil.

5. The driving unit as claimed in claim 4, further characterized in that:

30 said high magnetic permeable material is arranged to be elongating in the moving direction of said moving part.

6. The driving unit as claimed in any one claim of claims 1 to 5, further characterized in that:

35 said moving part is guided against said fixed part by a contact-free guide mechanism.

7. The driving unit as claimed in claim 6, further characterized in that:

35 said contact-free guide mechanism is an ultrasonic levitation mechanism.

8. The driving unit as claimed in any one claim of claims 1 to 7, further characterized in that:

said coil is mounted on said fixed part.

9. The driving unit as claimed in any one claim of claims 1 to 8,  
5 further characterized in that:

said moving part moves in one direction against said fixed part.

10. The driving unit as claimed in any one claim of claims 1 to 8, further characterized in that:

said moving part or said fixed part is intermittently provided with a plurality of coils including non-parallel coil arrangement, and said moving part moves in the X axis – Y axis two dimensional directions against said fixed part.

11. The driving unit as claimed in any one claim of claims 1 to 8, further characterized in that:

15 said moving part or said fixed part is intermittently provided with a plurality of coils including non-parallel coil arrangement, and said moving part moves in the X axis – Y axis two dimensional directions, and also rotates, against said fixed part.